



INVESTOR IN PEOPLE

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**The Patent Office  
Patents Directorate**

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**Your Reference:** DY3038  
**Application No:** GB 0226228.5

22 May 2003

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Dear Sirs

**Patents Act 1977: Search Report under Section 17(5)**

I enclose two copies of my search report and a copy of the citations. There will be some delay before I can obtain the documents referred to on page 2 of your application. However, a similar document found covering a similar subject by the same authors has been included with this report, and from a study of this document, it is likely that the acknowledged prior art as mentioned in this specification will not be citable. I will contact you if this is found not to be the case.

**Plurality of invention**

I consider that your application relates to more than one invention as follows:

- (a) Claims 1 - 16: System and method characterised by having a nozzle with fluid injection means situated upstream of said nozzle exit.
- (b) Claims 17 - 21: System and method characterised by having a nozzle with means to disturb the boundary layer between the nozzle body and the fluid flow.
- (c) Claims 22 - 24: System for exhausting gas characterised by having a control system for controlling fluid injection means.

My search report relates to the first invention only. If you want any of the other inventions searched, you should file a separate Patents Form 9/77 for each invention.

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<sup>†</sup>Use of E-mail: Please note that e-mail should be used for correspondence only.



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### Publication

I estimate that, provided you have met all formal requirements, preparations for publication of your application will be completed soon after **30 March 2004**. You will then receive a letter informing you of completion and telling you the publication number and date of publication.

### Amendment/withdrawal

If you wish to file amended claims for inclusion with the published application, or to withdraw the application to prevent publication, you must do so before the preparations for publication are completed. **No reminder will be issued.** If you write to the Office less than 3 weeks before the above completion date, please mark your letter prominently: **"URGENT - PUBLICATION IMMINENT"**.

Yours faithfully

Robert Lynch  
Examiner



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**Application No:** GB 0226228.5  
**Claims searched:** 1-16

**Examiner:** Robert Lynch  
**Date of search:** 27 May 2003

## Patents Act 1977 : Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X	1 - 16	US 6308898 B1	(The Boeing Company) See figures 1 and 2, lines 59 of column 5 - line 9 of column 6 and lines 16 - 30 of column 8. Document discloses a nozzle 40, in which are mounted injection means 42 upstream of the core nozzle exit.
X	1 - 6, 10, 11 & 14 - 16	US 5884843 A	(The Boeing Company) See figures 3 and 4, lines 29 - 42 of column 5 and lines 5 - 21 of column 6. Document discloses a nozzle 36 with fuel injection means 76 mounted upstream of the nozzle exit, and control means to open or close injector means.
X	1 - 6 & 16	GB 2207468 A	(Secr Defence) See figure 6 and lines 26 - 31 of page 5. Document discloses a nozzle with injector means 14 mounted upstream of the exit
X	1,2	GB 1141784 A	(Snecma) See figure 1. Document discloses a nozzle body portion 10,11, with injection means 24 located upstream of the exit 13 of said nozzle.
A	-	Alvi, F.S. and Shih, C, Sept 17 <sup>th</sup> 2002, "Research at the FMRL, The study and use of microjets" Graduate Lecture Dept of Engineering, FAMU-FSU College of Engineering	

### Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>v</sup>:

F1J, F2R

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

F02K



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The following online and other databases have been used in the preparation of this search report:

Online: EPODOC, WPI, PAJ, OPTICS, INTERNET